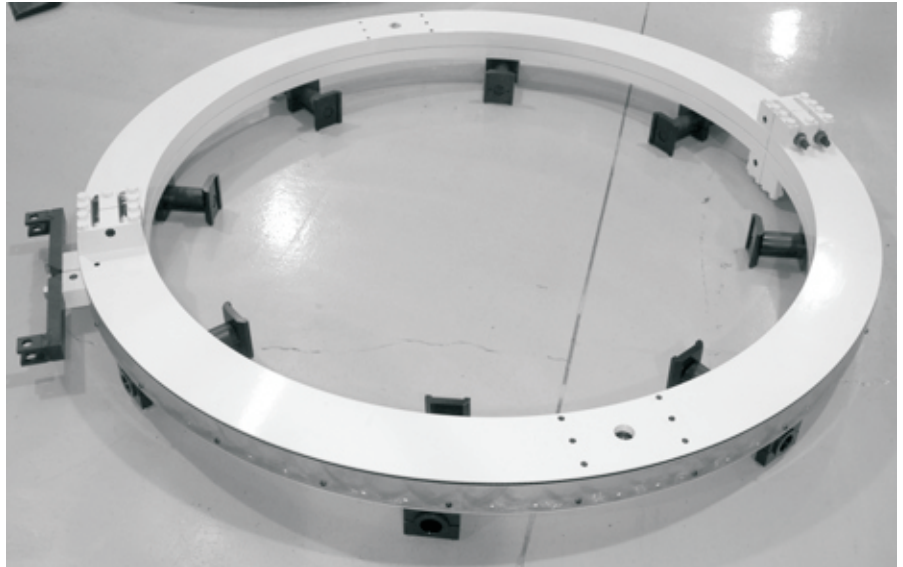




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Heavy Duty Split Frame User's Manual

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E.H. Wachs Company Part No. 06-113-MAN
Rev. 0-1006, October 2006

Revision History:
Original October 2006

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Chapter 1

About This Manual

PURPOSE OF THIS MANUAL

This manual explains how to operate and maintain the heavy duty split frame with O.D. tracking slides. It includes instructions for set-up, operation, and maintenance. It also contains parts lists and diagrams, and troubleshooting instructions to help you order replacement parts and perform user-serviceable repairs.

Before operating the split frame, you should read through this manual and become familiar with all instructions. At a minimum, make sure you read and understand the following chapters:

- Chapter 1, About This Manual
- Chapter 2, Safety
- Chapter 3, Introduction to the Heavy Duty Split Frame
- Chapter 5, Operating Instructions
- Chapter 9, Accessories

If you will be performing service or repairs, make sure you read and understand these chapters:

- Chapter 1, About This Manual
- Chapter 4, Assembly and Disassembly
- Chapter 6, Routine Maintenance
- Chapter 7, Troubleshooting and Repair.

You will also want to refer to Chapter 8, Parts Lists and Drawings.

In This Chapter

PURPOSE OF THIS MANUAL

HOW TO USE THE MANUAL

SYMBOLS AND WARNINGS

MANUAL UPDATES

Throughout this manual, refer to this column for warnings, cautions, and notices with supplementary information.

HOW TO USE THE MANUAL

This manual is organized to help you quickly find the information you need. Each chapter describes a specific topic on using or maintaining the equipment.

Each page is designed with two columns. This large column on the inside of the page contains instructions and illustrations. Use these instructions to operate and maintain the equipment.

The narrower column on the outside contains additional information such as warnings, special notes, and definitions. Refer to it for safety notes and other information.

SYMBOLS AND WARNINGS

The following symbols are used throughout this manual to indicate special notes and warnings. They appear in the outside column of the page, next to the section they refer to. Make sure you understand what each symbol means, and follow all instructions for cautions and warnings.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



NOTE

This symbol indicates a user notice. **Notices** provide additional information to supplement the instructions, or tips for easier operation.

MANUAL UPDATES AND REVISION TRACKING

Occasionally, we will update manuals with improved operation or maintenance procedures, or with corrections if necessary. Revised chapters will be available for customers. If you receive revised chapters for your manual, remove the old chapters from your binder and replace them with the new chapters.

When a manual is revised, we will update the revision history on the title page and at the bottom of the pages in the revised chapters. It is important to put the current title page with the revision history in your manual. This will help you make sure you have all current information.

You may have factory service or upgrades performed on the equipment. If this service changes any technical data or operation and maintenance procedures, we will include revised sections of the manual when we return the equipment to you. Remove the old chapters from your manual and replace them with the revised chapters.

Current versions of E.H. Wachs Company manuals are also available in PDF format. You can request an electronic copy of this manual by emailing customer service at sales@wachSCO.com.

Chapter 2

Safety

.....

The E.H. Wachs Company takes great pride in designing and manufacturing safe, high-quality products. We make user safety a top priority in the design of all our products.

Read this chapter carefully before operating the heavy duty split frame. It contains important safety instructions and recommendations.

OPERATOR SAFETY

Follow these guidelines for safe operation of the equipment.

- **READ THE OPERATING MANUAL.** Make sure you understand all setup and operating instructions before you begin.
- **INSPECT MACHINE AND ACCESSORIES.** Before starting the machine, look for loose bolts or nuts, leaking lubricant, rusted components, and any other physical conditions that may affect operation. Properly maintaining the machine can greatly decrease the chances for injury.
- **ALWAYS READ PLACARDS AND LABELS.** Make sure all placards, labels, and stickers are clearly legible and in good condition. You can purchase replacement labels from E.H. Wachs Company.
- **KEEP CLEAR OF MOVING PARTS.** Keep hands, arms, and fingers clear of all rotating or moving parts. Always turn machine off before doing any adjustments or service.

In This Chapter

OPERATOR SAFETY

SAFETY LABELS

SAFETY PRECAUTIONS

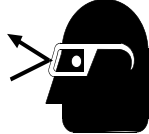
MACHINE SAFETY




Look for this symbol throughout the manual. It indicates a personal injury hazard.

- **SECURE LOOSE CLOTHING AND JEWELRY.** Secure or remove loose-fitting clothing and jewelry, and securely bind long hair, to prevent them from getting caught in moving parts of the machine.
- **KEEP WORK AREA CLEAR.** Keep all clutter and nonessential materials out of the work area. Only people directly involved with the work being performed should have access to the area.

Protective Equipment Requirements

	WARNING Always wear impact resistant eye protection while operating or working near this equipment.
---	---

For additional information on eye and face protection, refer to Federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

	CAUTION Personal hearing protection is recommended when operating or working near this tool.
---	--

Hearing protectors are required in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises, and resonant structures can increase the noise level in the area. For additional information on hearing protection, refer to Federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure and ANSI S12.6 Hearing Protectors.

SAFETY LABELS

There is no safety labeling on the heavy duty split frame.

MACHINE SAFETY

To avoid damaging the heavy duty split frame, follow these usage guidelines.

- Lubricate the machine according to the recommendations in Chapter 6.
- Before starting the machine, make sure the star wheel is aligned as described in Chapter 5.

Chapter 3

Introduction to the Heavy Duty Split Frame

Read this chapter carefully to become familiar with the components of the heavy duty split frame.

USAGE AND APPLICATIONS

The heavy duty split frame is a pipe cutting and beveling machine using outside diameter (O.D.) tracking slides for even, efficient cutting of pipes that are out of round or that are not centered within the frame of the machine. The split frame is available in various sizes, each with a pipe size range of 12 inches in diameter.

The machine is supplied with a custom storage case to hold all components and accessories. Keep the split frame stored in its case when it is not in use.

MECHANICAL OVERVIEW

Figure 3-1 illustrates the components of the heavy duty split frame. Figure 3-2 shows one of the tracking slides. Figure 3-3 shows one of the machine's clamping legs. Refer to these figures during set-up instructions for identifying the parts of the machine.

In This Chapter

USAGE AND APPLICATIONS

MECHANICAL OVERVIEW

ACCESSORIES

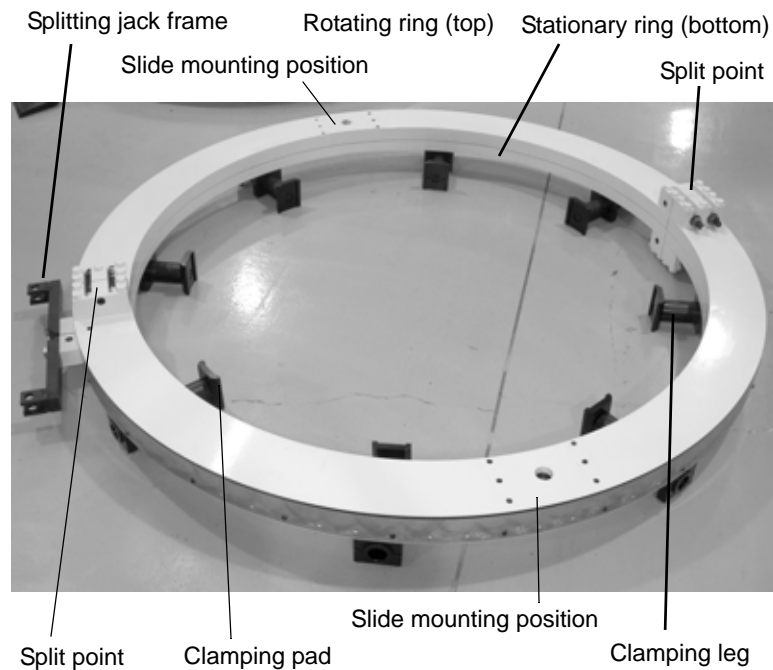


Figure 3-1. The photo illustrates components of the 4860 (48 inch to 60 inch pipe) heavy duty split frame.

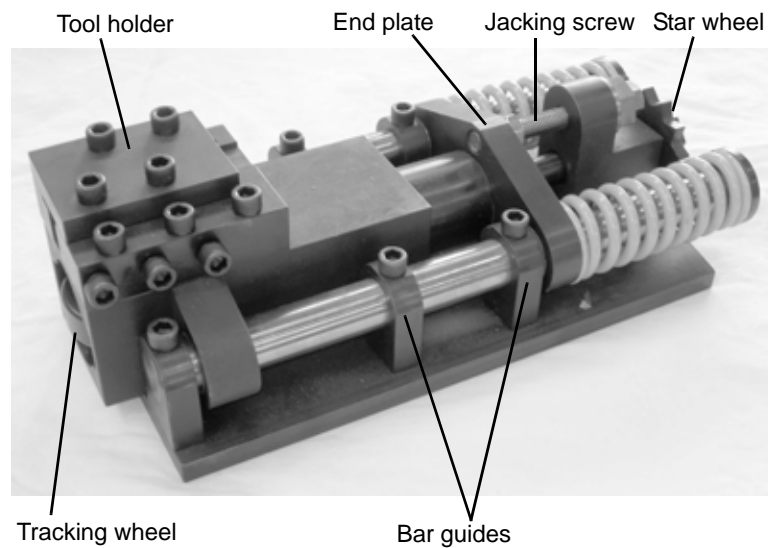


Figure 3-2. The photo shows the components of the O.D. tracking slide.

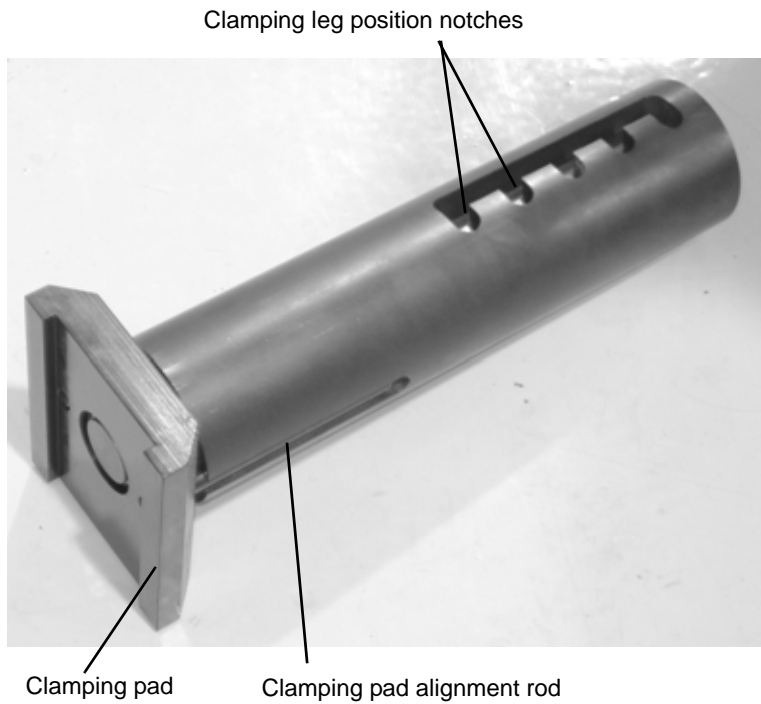


Figure 3-3. The photo illustrates the parts of the clamping leg. There are eight legs used on the HDSF 4860 machine.

ACCESSORIES

- Speed control valve (for use with hydraulic power units without built-in flow control). See Figure 3-4.

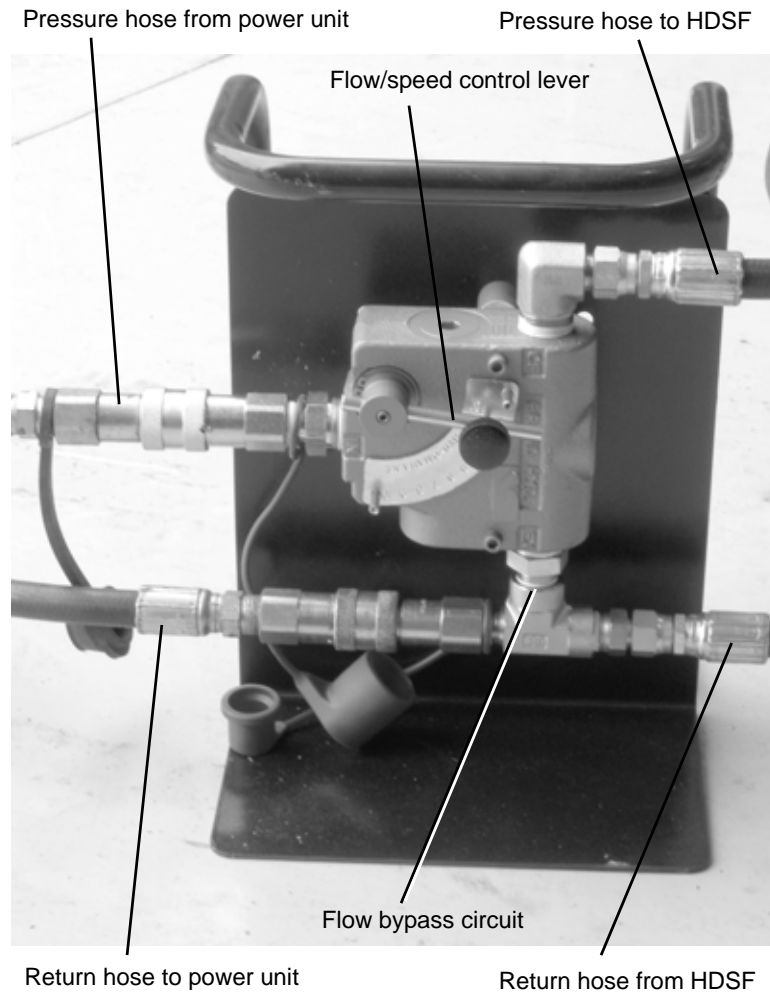


Figure 3-4. The flow control valve is used to set the cutting speed of the HDSF when there is no flow control on the hydraulic power unit.

Chapter 4

Assembly, Disassembly, and Storage

The major components of the heavy duty split frame are factory assembled and ready for set-up. The machine is split apart and packaged in a custom case for shipping and storage, as shown in Figure 4-1. (Depending on the size of the split frame, the way the components are arranged in the case may be different.)

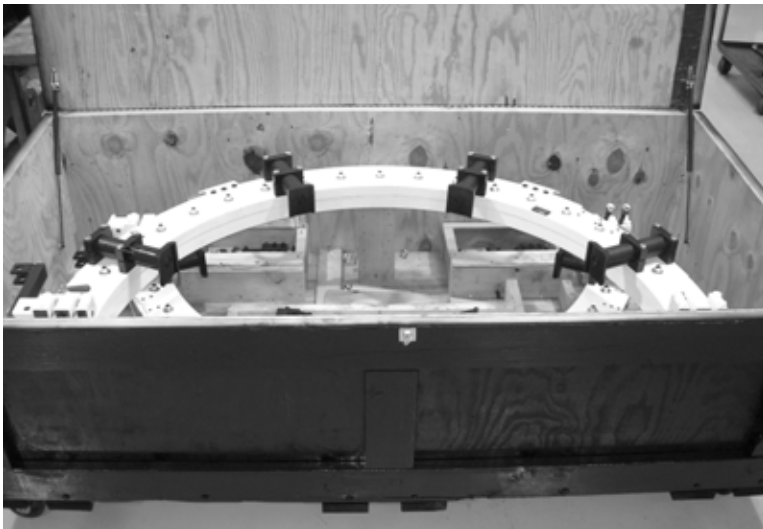


Figure 4-1. The heavy duty split frame is stored and shipped in a custom-built case.

See the Set-Up section of Chapter 5 for instructions on opening the ring for mounting it on a workpiece.

In This Chapter

STORING THE HDSF

ENVIRONMENTAL
REQUIREMENTS

LONG-TERM STORAGE

SHIPPING

Keep the flow control valve assembly out of the crate until you have stored both halves of the HDSF ring.



STORING THE HDSF

Split the machine into halves before putting it into the storage case. Reverse this procedure to remove the machine from the case.

1. Remove the slides, trip assembly, and hydraulic motor from the machine. Store them in the case as shown in Figure 4-2.

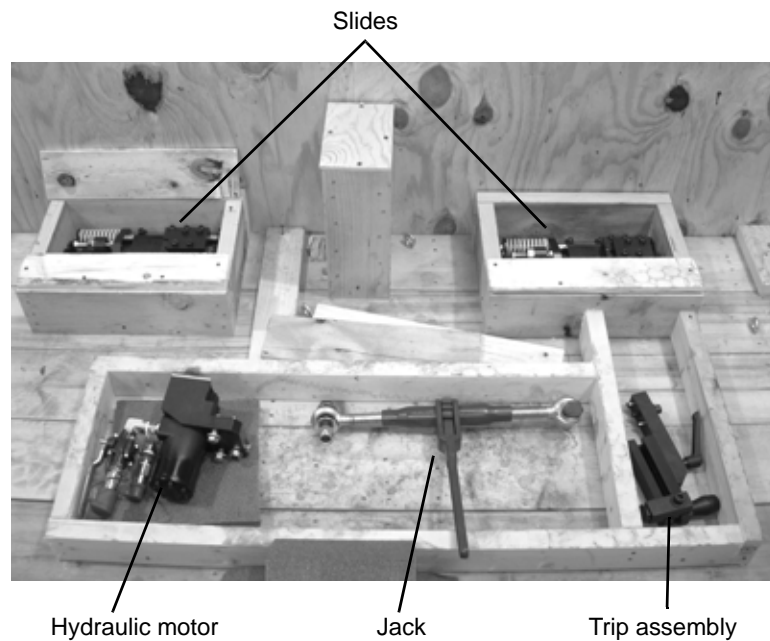


Figure 4-2. Store the smaller components of the machine in the bottom of the storage case.

2. Rotate the rotating ring until the split points on both rings are aligned.

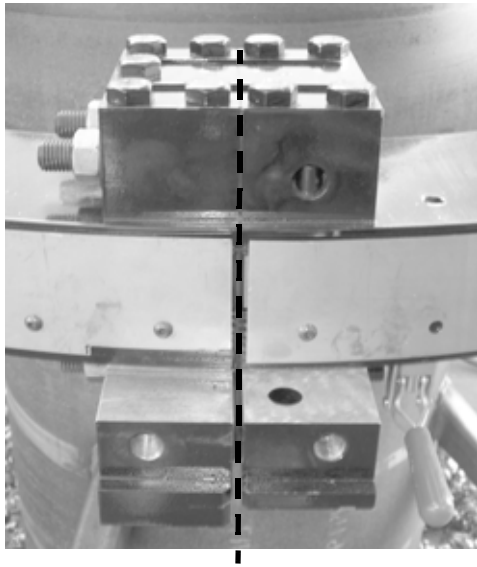


Figure 4-3. Turn the rotating ring so that the split lines on both rings are aligned.

3. Swivel the frame locking levers in toward the center of the machine to lock the rotating and stationary rings together.
4. Turn the frame jacking screw on each split point in to separate the halves of the ring. Turn the screws until the dowel pins that align the halves are fully out of their holes.

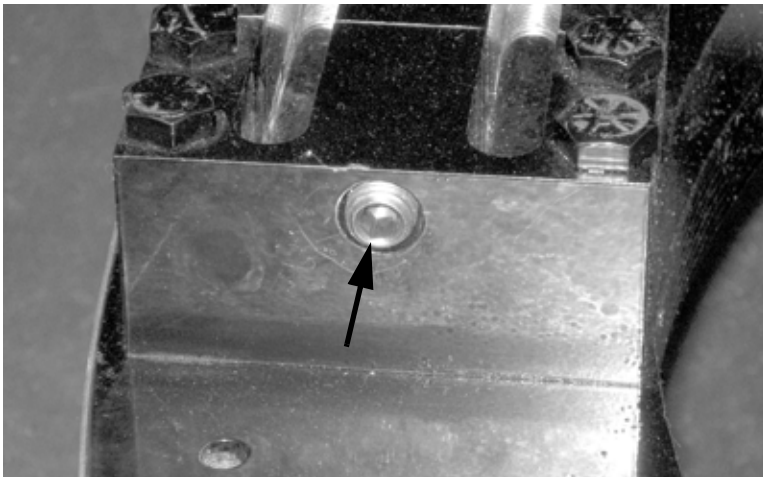


Figure 4-4. Turn the frame jacking screw into the block to separate the frame at the split point.

Store the rings in the case with the rotating ring side down.



5. Attach a crane to one half of the ring using lifting straps. Lower the ring half into the crate in the position shown in Figure 4-5.

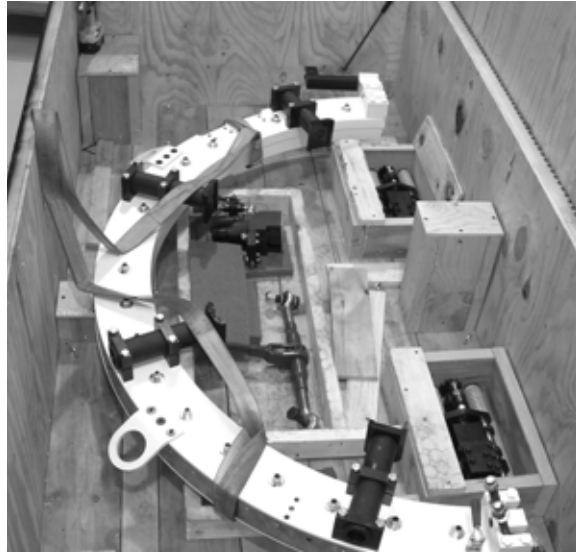


Figure 4-5. Put the first half of the ring into the crate as shown. The ends of the ring should rest on the support blocks in the corners.

6. Attach the crane to the other half of the ring using lifting straps and lower it into the crate as shown in Figure 4-6.



Figure 4-6. Put the second half of the ring into the crate and position it on the taller mounting blocks.

7. Put the flow control assembly in the case alongside the split frame.



Figure 4-7. Put the flow control assembly along the side of the case.

8. Strap the split frame to the eye bolts on the bottom of the crate using the provided straps, as shown in fig.

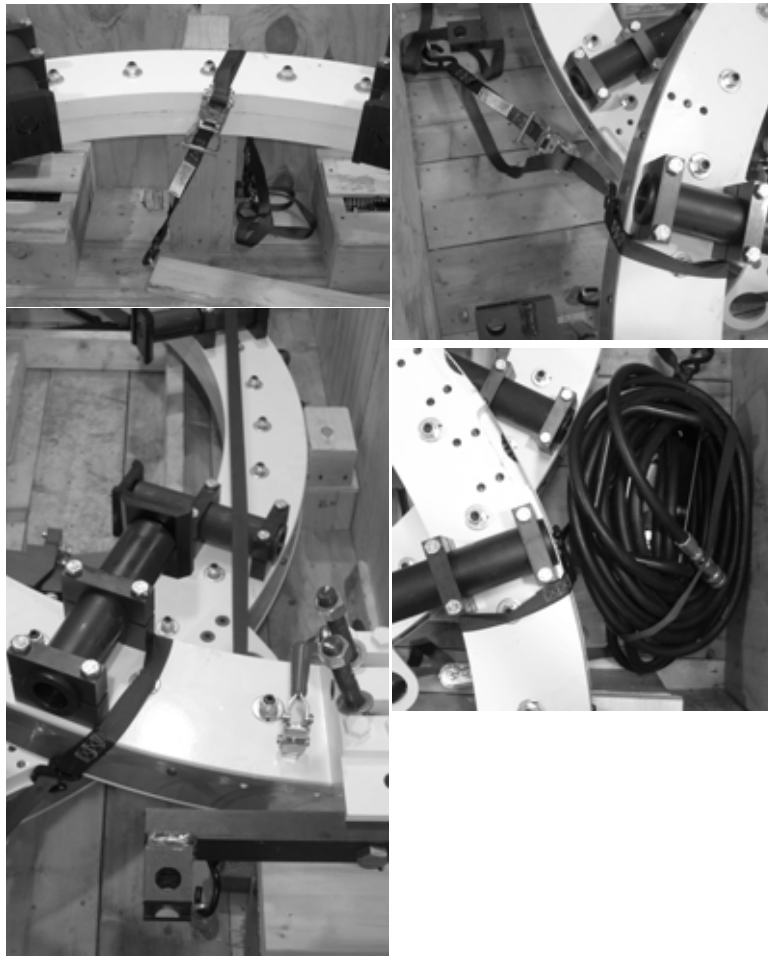


Figure 4-8. Secure the split frame in the case using the four straps provided.

ENVIRONMENTAL REQUIREMENTS

The heavy duty split frame can be used in any industrial environment. The machine can be used for dry cutting or with coolant applied to the workpiece.

LONG-TERM STORAGE

If you will be storing the heavy duty split frame, take the following steps to prepare it:

- Make sure the machine is thoroughly cleaned and cleared of chips and debris.
- Spray the machine with a rust preventative.
- Add a desiccant to the storage case.
- Always store the machine and its accessories in the storage case provided.

SHIPPING

The heavy duty split frame should be shipped in its storage case. Make sure all components are correctly positioned and fastened in the case, and securely fasten the case lid.

Chapter 5

Operating Instructions

FRAME SET-UP

Splitting and Closing the Frame

1. Align the rotating and stationary rings so that the split points are aligned.

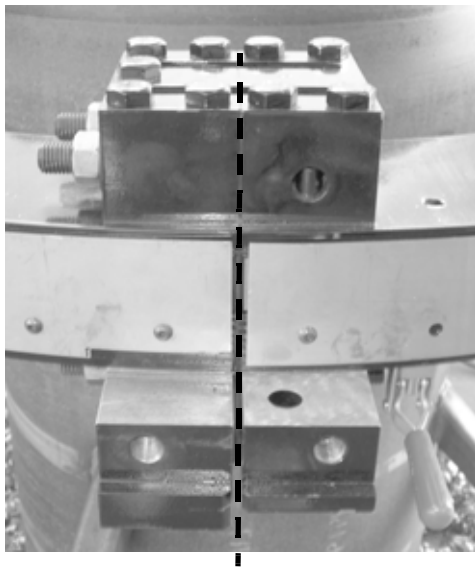


Figure 5-1. Turn the rotating ring so that the split lines on both rings are aligned.

2. Swing the frame locking levers toward the inside of the frame to lock the stationary and rotating rings together.
3. Attach the hinge and the jack to the hinge side of the frame. (The hinge side has two threaded holes, as

In This Chapter

FRAME SET-UP

CONNECTING POWER

TRACKING SLIDE SET-UP

OPERATION



Required tools:
3/8" hex wrench,
1/2" socket

wrench, 3/4" socket wrench,
7/8" socket wrench, 1-1/8"
socket wrench, 1-1/8 inch
open end wrench.

shown in Figure 5-3.)

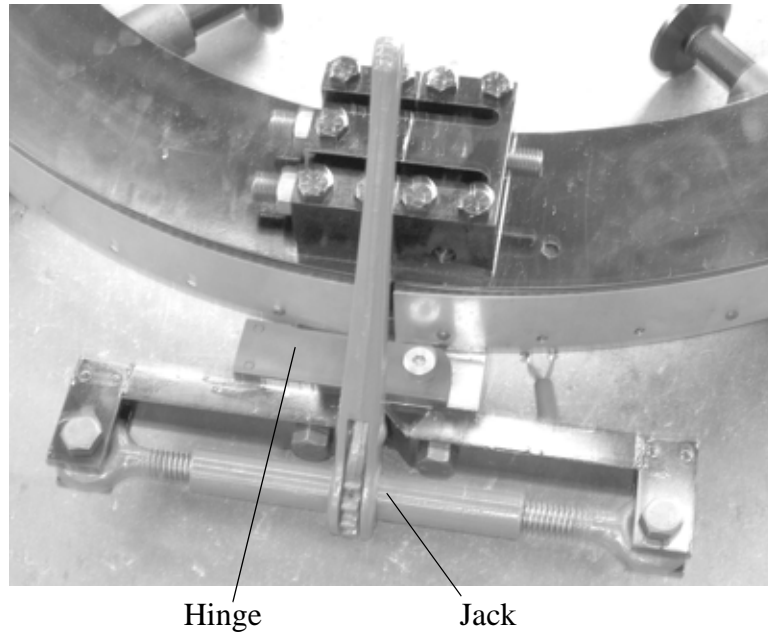


Figure 5-2. Attach the hinge and the jack to the split point.

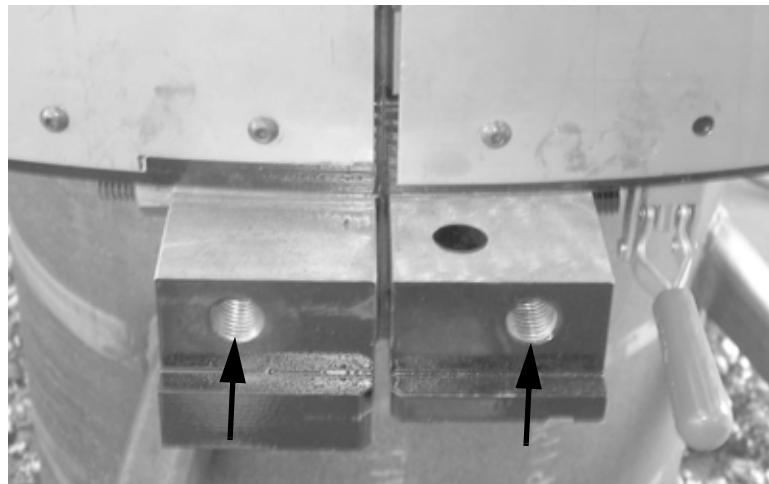


Figure 5-3. The hinge side of the frame has two threaded holes for attaching the hinge.

Use a 1-1/8 inch socket wrench to loosen the swing latch nuts.



4. There are four swing latches at each split point—two on the top (rotating) side of the frame, and two on the bottom (stationary) side of the frame. Loosen all eight swing latch nuts and swing the latches out of their channels.



Figure 5-4. The photo shows the swing latches on the stationary ring side of the frame. Loosen the nuts and lift the latches out of their channels.

5. Turn the frame jacking screws on the split point opposite the hinge to separate the two halves of the frame. Make sure the dowel pins are fully retracted from the other side of the frame.
6. Turn the frame jacking screws on the split point with the hinge to separate the frame. Make sure the dowel pins are fully retracted.



Use a 3/8 inch hex wrench to turn the frame jacking screws.

CAUTION: Make sure the halves of the ring do not close again while operating the jack. The dowel pins could bind and break if they are in the alignment holes while you are opening the ring.



WARNING: Make sure that no one is near the split frame while operating the lift.

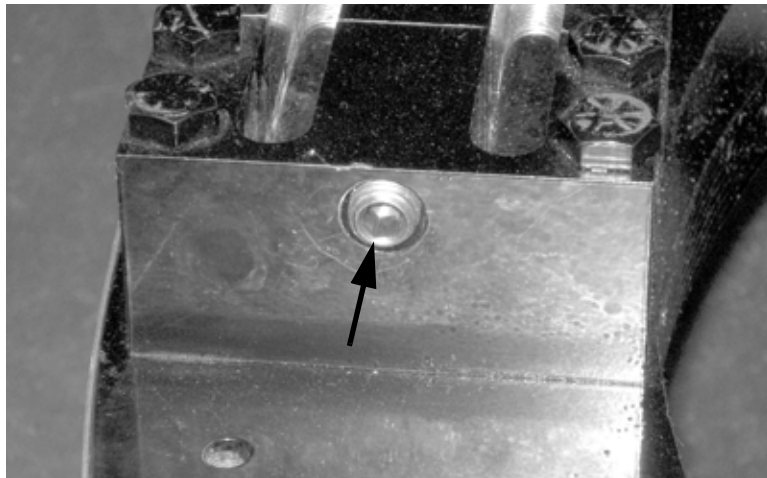
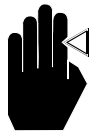


Figure 5-5. Turn the frame jacking screw into the block to separate the frame at the split point.

7. Operate the frame jack to pull the sides of the hinge together. Open the frame as far as necessary to install it on the workpiece.

Mounting The Frame on the Workpiece

1. Lift the split frame into position over the workpiece.
2. Turn the frame jacking screws back out to allow the split points to close.
3. Reverse the ratchet on the frame jack. Operate the jack to close the hinge.
4. Push the swing latches back into their channels at all four locations and tighten the nuts to secure the split points.
5. Screw the clamping pads all the way into the clamping legs using a socket wrench inserted through the back of each clamping leg.



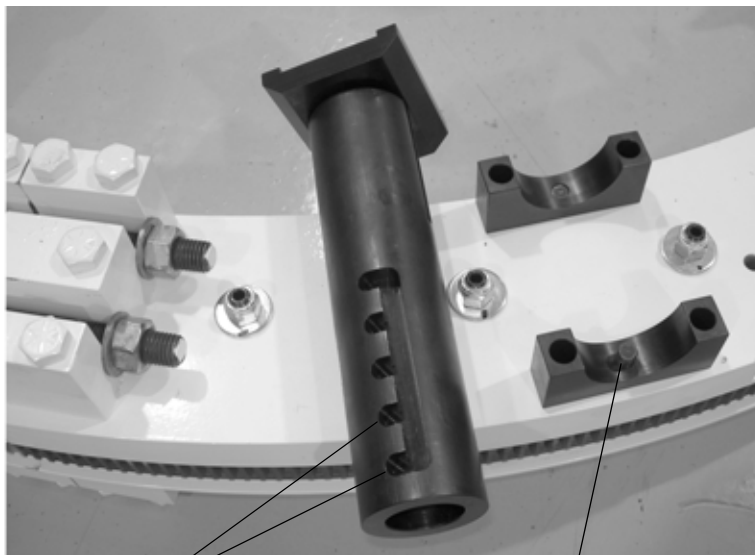
Figure 5-6. Use a 1-1/8" socket inserted through the back of the clamping leg to screw the clamping pads all the way back.

6. Set the position the clamping legs for the size of the pipe you are cutting. With the leg clamping blocks loosened, move the leg to the desired position and rotate it to set the position pin into one of the notches on the leg.



IMPORTANT:

Set all eight clamping legs at the same position notch.



Position notches

Position pin

Figure 5-7. The position notches in the leg fit onto the pin in the inside clamping block. The notches are 1" apart.

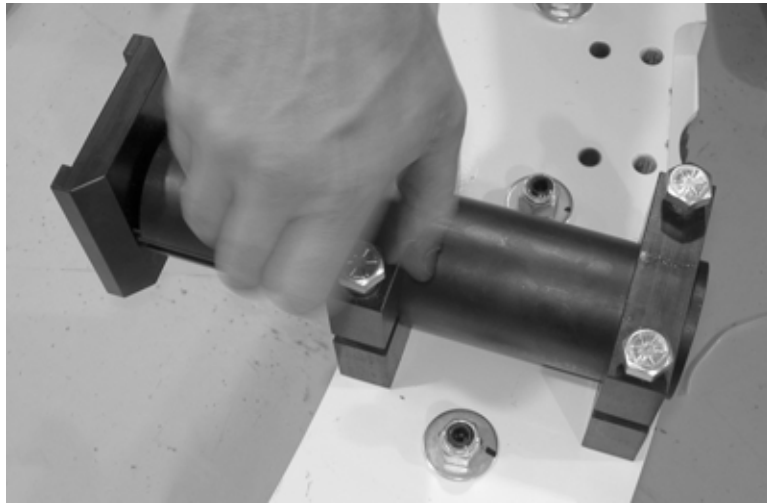


Figure 5-8. After positioning the leg, tighten the clamping block bolts to secure it.

7. Insert a 1-1/8" socket through the back of each clamping leg and adjust them so that the pads are just touching the pipe.



Figure 5-9. Tighten the clamping pads using a 1-1/8" socket inserted through the back of the clamping leg.

8. Securely tighten all clamping legs to firmly affix the frame to the pipe.
9. Remove tension on the lift slowly, making sure the ring does not shift. Remove the lift chains or straps.

CONNECTING POWER

Pneumatic Power

1. Install the air motor on the motor mount, as shown in Figure 5-12.
2. Adjust the clearance between the pinion gear and the rotating frame gear using the pinion clearance adjustment screw (see Figure 5-13). The pinion gear should be as close as possible to the frame gear without binding.



Figure 5-10. Install the air motor on the frame and tighten the two bolts (underneath) that secure it.



The air supply should provide 95 cfm (2690 lpm). Maximum pressure should be no more than 90 psi (1300 bar).



Use the following tools to attach and adjust the air motor: 3/4" socket to tighten the motor mounting bolts and the pinion clearance set screw; 1/2" socket to turn the pinion clearance adjustment screw.

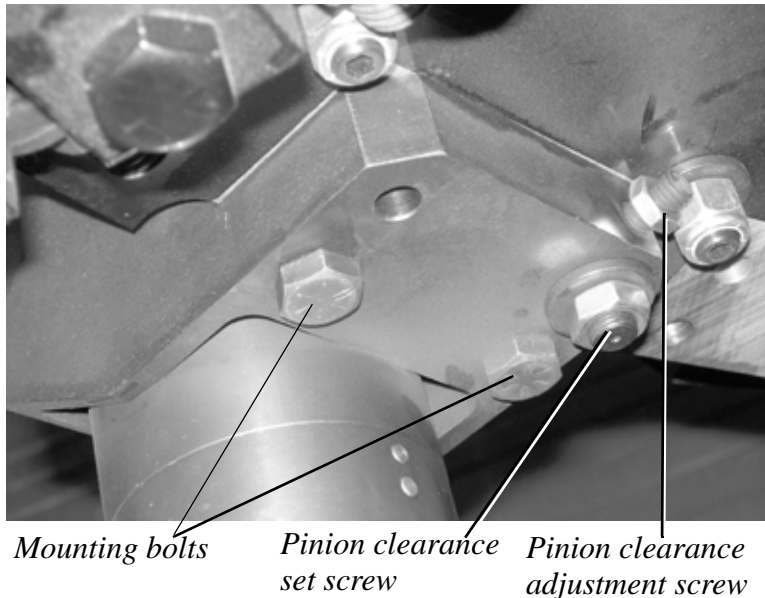


Figure 5-11. Two bolts fasten the air motor mount to the frame. To set the pinion clearance, loosen the set screw and turn the adjustment screw. Re-tighten the set screw.

3. Attach the air line to the connector on the air motor.

Use the following tools to attach and adjust the hydraulic motor: 3/4" socket to tighten the motor mounting bolts and the pinion clearance set screw; 1/2" socket to turn the pinion clearance adjustment screw.



Hydraulic Power

1. Install the hydraulic motor on the motor mount, as shown in Figure 5-12.
2. Adjust the clearance between the pinion gear and the rotating frame gear using the pinion clearance adjustment screw (see Figure 5-13). The pinion gear should be as close as possible to the frame gear without binding.

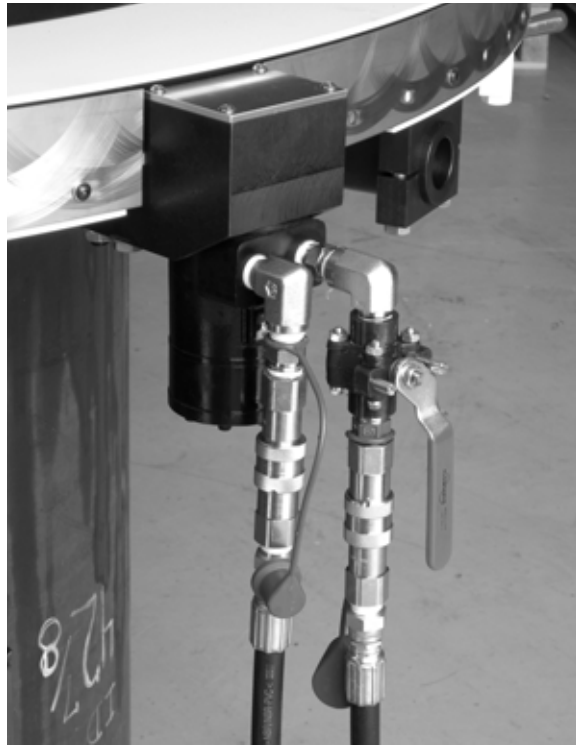
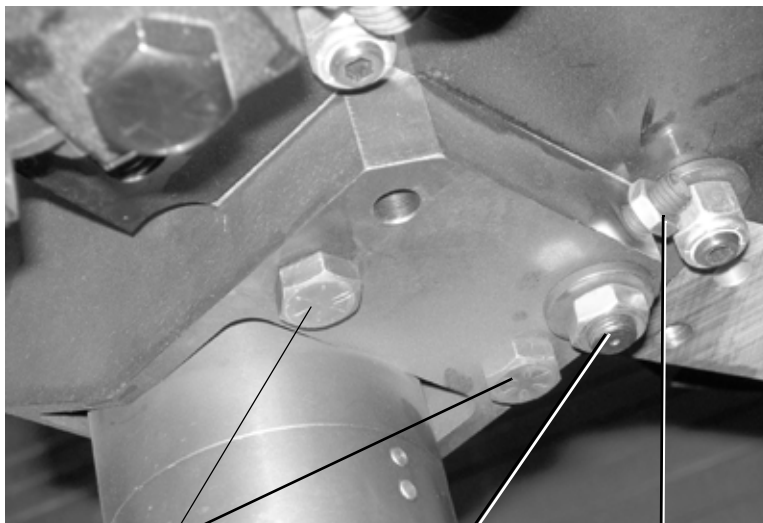


Figure 5-12. Install the hydraulic motor on the frame and tighten the two bolts (underneath) that secure it.



Mounting bolts Pinion clearance set screw Pinion clearance adjustment screw

Figure 5-13. Two bolts fasten the motor mount to the frame. To set the pinion clearance, loosen the set screw and turn the adjustment screw. Re-tighten the set screw.

3. Connect the hoses from the hydraulic power unit (HPU) to the flow control valve assembly, as shown in Figure 5-14
4. Connect the hoses from the hydraulic motor on the split frame to the flow control valve assembly as shown in Figure 5-14.

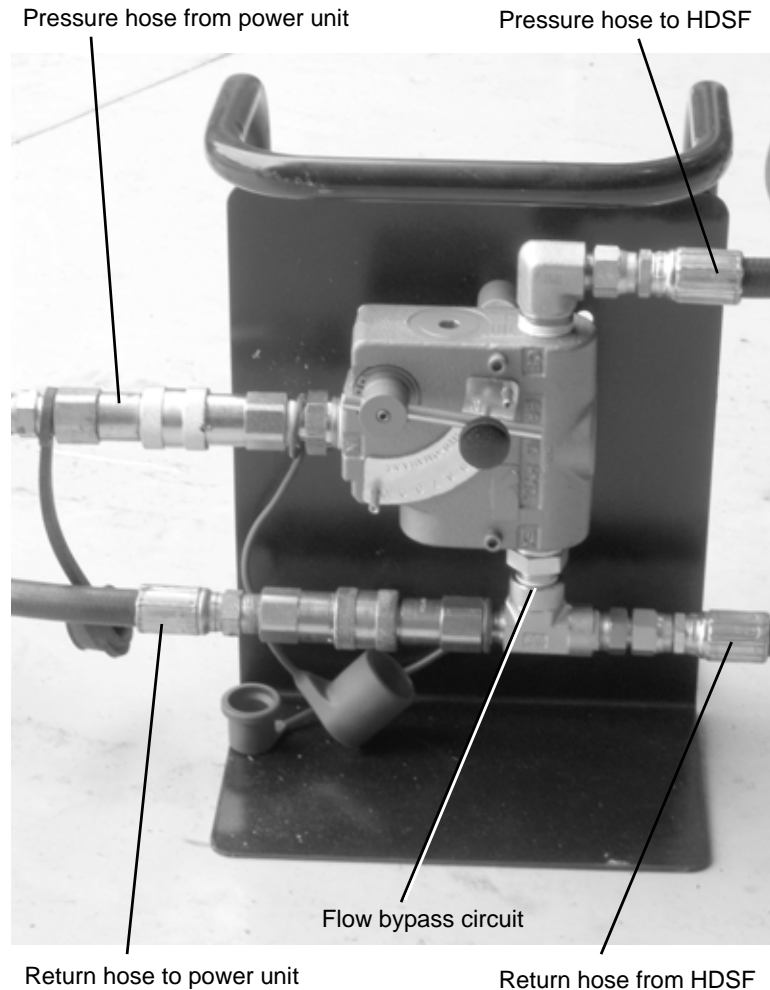
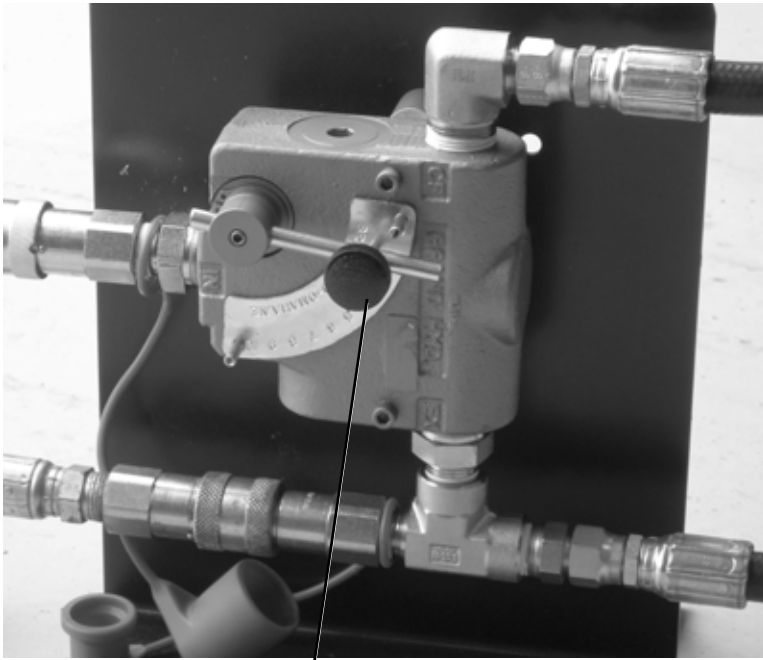


Figure 5-14. Connect the flow control valve as shown between the HPU and the split frame motor.

5. Set the flow lever on the flow control valve to 0, and set the flow lever on the motor to the closed position.
6. To operate the split frame, open the flow valve on the hydraulic motor, then move the flow control lever on the control valve to increase the flow.



Flow control lever (in "0" position)

Figure 5-15. Move the flow control lever down to open flow to the hydraulic motor.

TRACKING SLIDE SET-UP

The tracking slides provide uniform cutting and beveling on pipes that are out of round or in situations where the split frame is not centered on the pipe. The spring-tensioned tracking mechanism allows radial motion (perpendicular to the side of the pipe) of up to 1/2 inch, keeping the cutting tool on the pipe at all times and compensating for a maximum 1 inch out-of-roundness.

Two tracking slides are provided. One includes a tool fitting for a parting tool; the other can hold either a parting tool or a beveling tool. You can use these slides to perform a cutting and beveling operation, or an offset severing operation with two parting tools.

Do not tighten the mounting bolts yet. You will tighten them when you finish positioning the slide.



The parting tool slide can be mounted at either slide position on the frame.



Use a 1-1/8 inch open end wrench to turn the jacking nut.



Slide Set-Up for Cutting and Beveling

1. Position the slide mounting blocks for the parting tool slide on the split frame rotating ring and insert the mounting bolts, as shown in Figure 5-16.

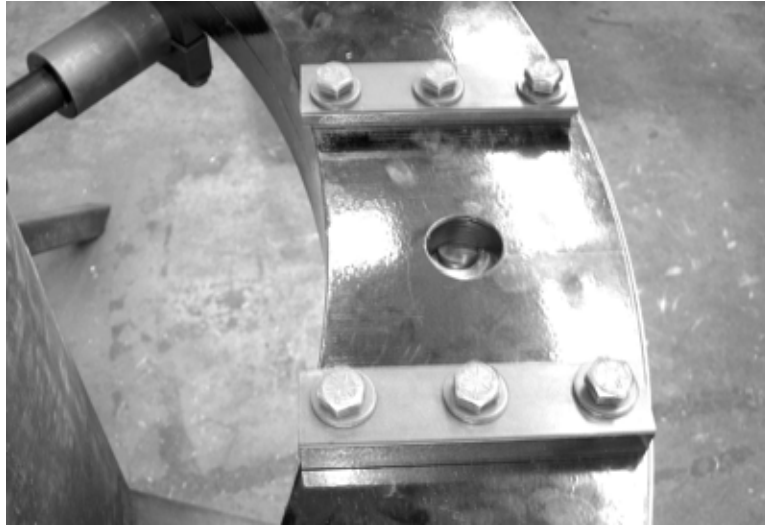


Figure 5-16. Install the slide mounting blocks on the rotating ring. Leave the mounting bolts loose.

2. Mount the parting tool slide onto the rotating ring by sliding the base plate into the channels on the undersides of the slide mounting blocks. Leave the mounting bolts loose.
3. Turn the jacking screw on the parting tool slide so that the end plate is all the way forward (toward the bar guides). Turn the nut back one turn.

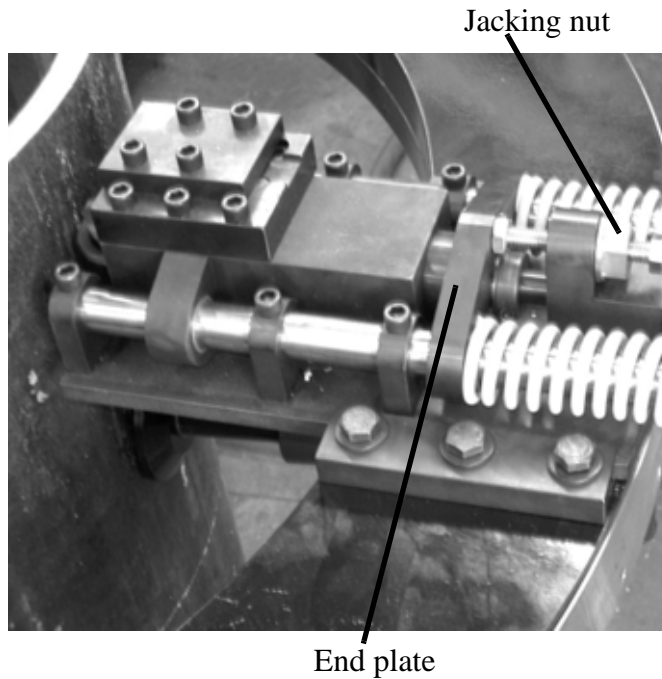


Figure 5-17. Turn the slide jacking nut to retract the end plate all the way back (fully compressing the springs). After fully retracting, turn the nut back one turn.

4. Push the slide all the way toward the pipe until the tracking wheel contacts the pipe surface.
5. Tighten down the bolts on the mounting blocks until they are just snug enough to keep the slide from moving freely. Do not tighten them completely; the slide will need to move when you run the machine to set the high point.
6. Repeat Steps 1-5 for the beveling tool slide.
7. Release the frame locking levers to allow the rotating ring to turn.
8. Engage the power and slowly drive the frame around the pipe one complete rotation. As the tracking wheel on each slide travels over the surface of the pipe, it will push the slide back so that it is in position to contact the pipe at the high point (the location where the clearance is least).
9. Without moving the slides, securely tighten the bolts



Use a 3/4 inch socket wrench to tighten the mounting bolts.



WARNING:
Keep hands and clothing clear of the machine while operating it.

on the slide mounts.

10. Turn the jacking nuts on both slides back until the end plate almost touches the bar guide.

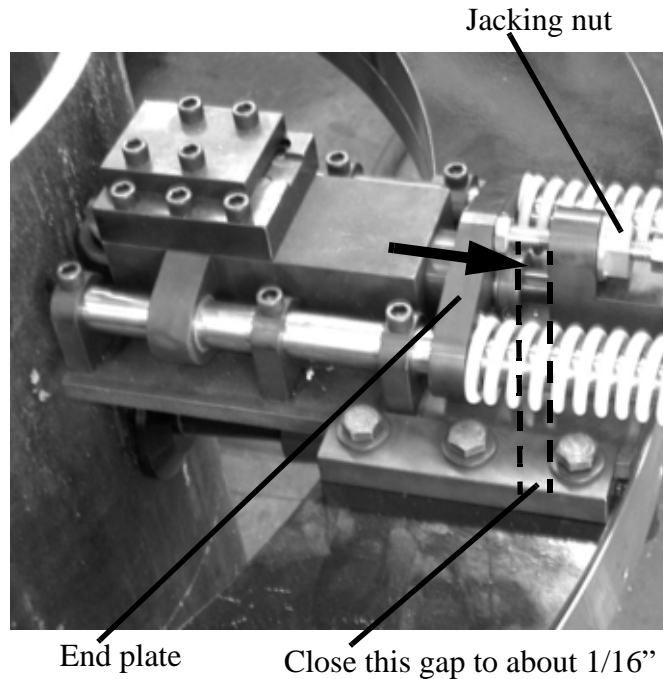


Figure 5-18. Turn the jacking nut back until the end plate is almost fully retracted. There should be about 1/16" clearance between the endplate collar and the jacking nut post.

Use a 1-1/8 inch socket wrench to turn the star wheel.



11. Turn the star wheel on the parting tool slide to fully retract the tool mount away from the pipe.
12. Insert the tool into the tool mount.
13. Turn the star wheel to drive the tool toward the pipe until the blade is 1/16" from the pipe surface.
14. Repeat Steps 11-13 for the beveling tool slide.
15. Install the trip assembly on the stationary frame.
16. Using the air motor, rotate the frame to position one of the star wheels over the trip assembly.

WARNING:

Keep hands and clothing clear of the machine while operating it.



17. Loosen the trip locking lever. Using the trip adjustment knob, slide the trip toward or away from the frame to position it beneath the star wheel.

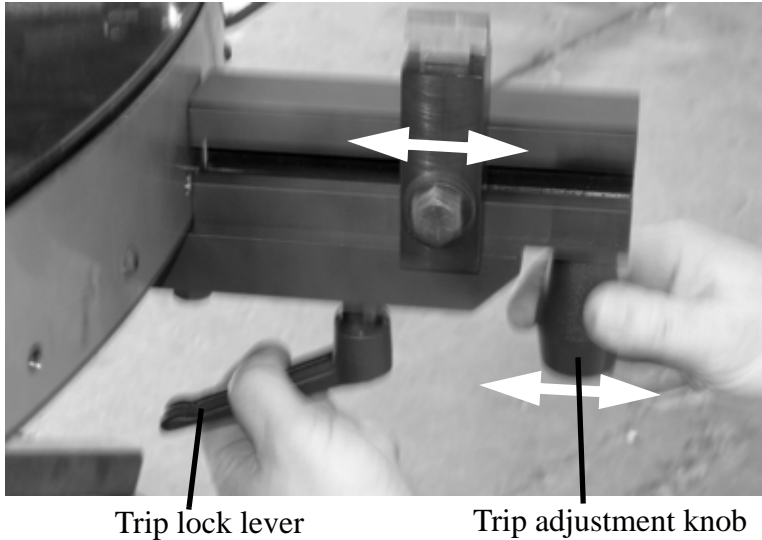


Figure 5-19. Loosen the trip lock lever and slide the trip adjustment knob to position the trip beneath the star wheel on the slide.

Slide Set-Up for Offset Cutting

Follow the same procedure as the previous section for installing both slides. When you install the beveling tool slide, insert a parting tool instead of a beveling tool.

The beveling tool slide is designed to hold a parting tool with a 1/16" offset from the tool in the parting tool slide. This will result in a cut 1/16" wider than the cut made by a single parting tool.

OPERATION

1. Power on the hydraulic power unit or air compressor supplying power to the machine.
2. If you are using air power, engage the air motor to start the machine. Adjust the speed with the air motor controller.



The height of the trip is not adjustable. It is fixed in relation to the slide.



CAUTION: Do not operate the split frame with a single parting tool only. A beveling tool or second parting tool is required to keep the parting tool from binding in the cutting groove.



WARNING: Keep hands and clothing clear of the machine while operating it.

If the beveling blade contacts the pipe before the parting blade, stop the machine and adjust the slides by turning the star wheel.



CAUTION: Watch the tracking wheels to make sure that they stay clear of chips.



3. If using hydraulic power, open the flow valve on the hydraulic motor.
4. If you are using the hydraulic flow control valve, slowly move the flow control lever on the valve to provide power to the motor. At the maximum flow of about 15 gpm, the split frame will rotate at approximately 8.7 RPM.

Make sure that both star wheels are engaging the trip(s) on every rotation.

Use coolant on the cutting surface to improve cutting and extend tool life.

As the tools penetrate the pipe surface, watch to make sure both slides are advancing at the same rate. (Depending on the type of material being cut, the difference in resistance on the two tools may cause one to advance more slowly.) If one slide is advancing too rapidly, slow the machine to the slowest speed possible and retract the slide slightly using a socket on the star wheel.

If you are operating with the split frame horizontal (cutting a vertical pipe), you may have to clear chips from the tracking wheels. Use compressed air to blow the chips out as the slides pass, or stop the machine and brush the chips out of the wheel assembly.

Maintenance Notes

Every 8 hours of operation, remove and clean the tracking wheel and bearings on both slides.

Chapter 6

Routine Maintenance

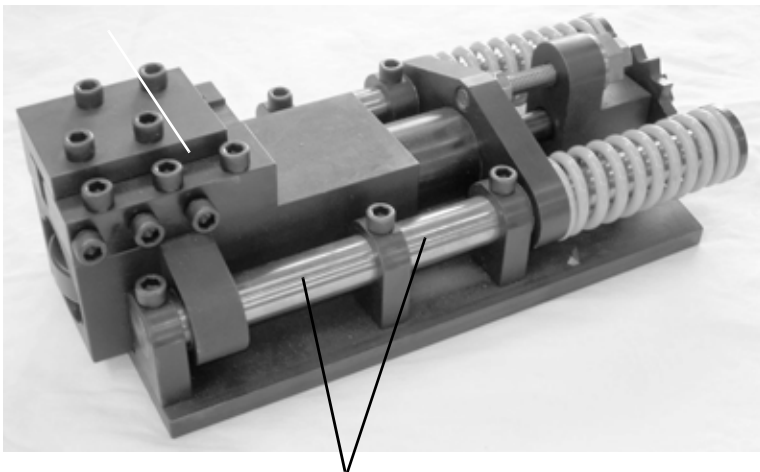
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The heavy duty split frame requires minimal maintenance. Follow the lubrication guidelines in this chapter.

Clean the slides of all chips and debris after each use. Make sure that all chips are cleared from around the tracking wheel.

LUBRICATION

Before each machining operation, lubricate the slide rods on both slides.



Lubricate the slide rods using conventional grease

Figure 6-1. Lubricate the slides before each machining operation.

In This Chapter

LUBRICATION

TOOL INSERTS

Apply standard grease to all grease fittings on the split frame every time you use the machine.

TOOL INSERTS

Check the sharpness of the tool inserts frequently. Replace dull inserts as necessary.

Chapter 7

Service and Repair

.....

The heavy duty split frame is a durable system with little required maintenance. This chapter contains information on performing machine adjustments and service.

ADJUSTING THE BEARINGS

You should adjust the bearings in the split frame if you can feel play between the rotating and stationary rings. To check for play, lay the assembled split frame on a work surface with the rotating ring down. Push back and forth on the stationary ring; if it moves, the bearings need to be adjusted according to the following procedure.

1. Lay the split frame on the work surface with the rotating ring up.
2. Remove the tool slides, if necessary.
3. Align the rotating ring with the stationary ring so that the split points are aligned.

In This Chapter

ADJUSTING THE BEARINGS



Required tools:
1/4" hex wrench,
3/8" hex wrench,
7/8" socket wrench, 1-1/8"
socket wrench.

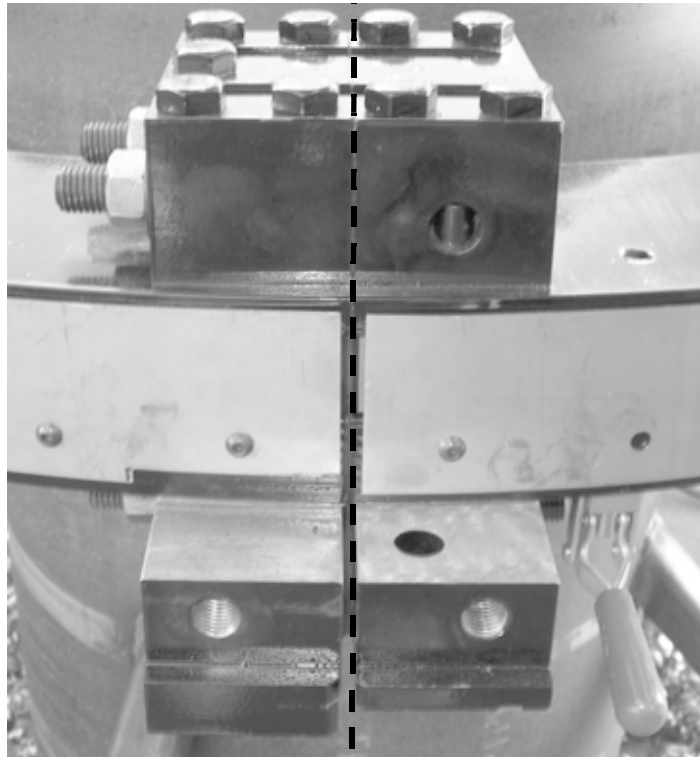


Figure 7-1. Turn the rotating ring so that the split lines on both rings are aligned.

4. Set the frame locking lever on both sides of the frame.

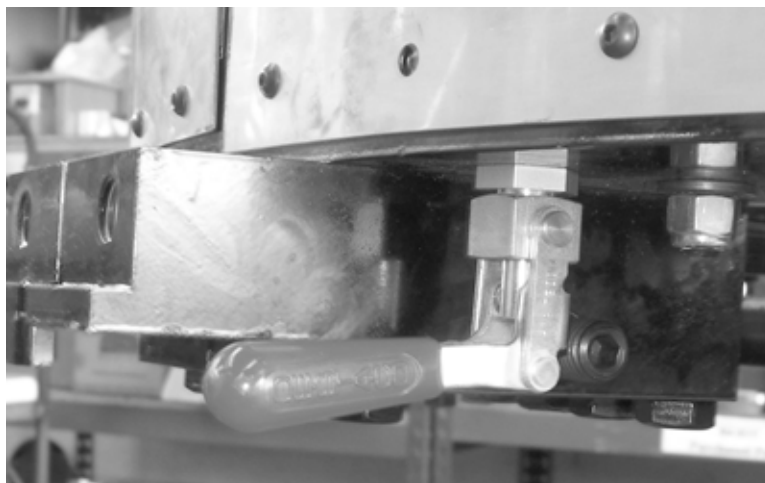


Figure 7-2. Swivel the frame locking levers toward the outside of the frame to lock the stationary and rotating rings together.

5. There are four swing latches at each split point—two on the top (rotating) side of the frame, and two on the bottom (stationary) side of the frame. Loosen all eight swing latch nuts and swing the latches out of their channels.



Figure 7-3. The photo shows the swing latches on the stationary ring side of the frame. Loosen the nuts and lift the latches out of their channels.

6. Turn in the frame jacking screws on both split points to separate the two halves of the frame. Once the frame is separated, turn the jacking screws back out all the way.



Use a 1-1/8 inch socket wrench to loosen the swing latch nuts.



Use a 3/8" hex wrench to turn the frame jacking screws.

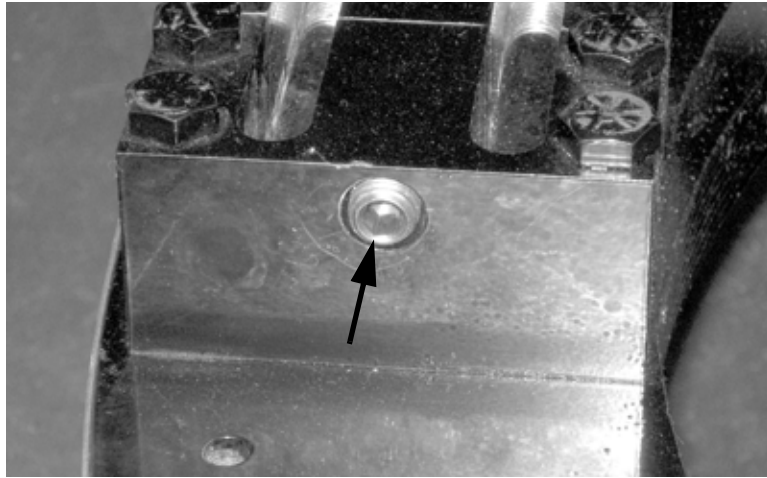


Figure 7-4. Turn the frame jacking screw into the block to separate the frame at the split point.

Perform steps 9-12
for both halves of
the ring.



Check the
condition of all
bearings, and
replace any components that
are worn or damaged.



7. Pull the two halves of the frame apart.
8. Swing the frame locking lever toward the inside of the frame to allow the rotating ring to turn.
9. On each half of the frame, turn the rotating ring out of the stationary ring and remove it. Turn the stationary ring over to access the bearing nuts on the back.
10. Using a 7/8" socket, loosen the Nylock hex nut on each bearing just enough to allow the eccentric shafts to rotate smoothly. Turn the ring back over.
11. Rotate all eccentric shafts so that the notch in the bearing surface points toward the inside of the ring.
12. Slide the rotating ring back into the stationary ring and reset the frame locking lever.
13. Reassemble the two halves of the frame, aligning the dowel pins into the corresponding alignment holes.
14. Set all eight swing latches back in their channels and tighten them to secure the frame.
15. Release the frame locking lever to allow the rotating ring to turn.

16. Turn the rotating ring so that you can access bearing #1 (shown in Figure 7-5) through the bearing access hole in the rotating ring. NOTE: depending on the size of the split frame, you may need to use the motor drive to turn the frame.

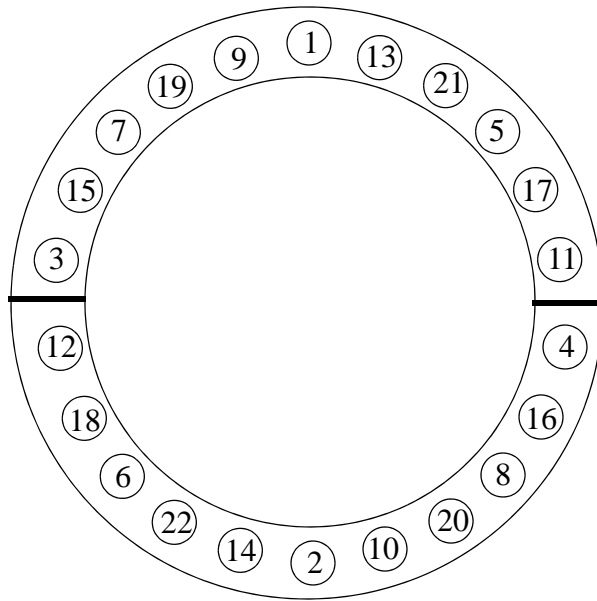


Figure 7-5. Tightening order of bearings in split frame. View is looking down onto rotating ring.

17. Insert a 1/4" hex wrench through the bearing access hole and turn the eccentric shaft of the bearing **clockwise** until the bearing feels fully seated in the groove. Hold the eccentric shaft at this position with the wrench.
18. On the back of the stationary ring, tighten the Nylock hex nut for bearing #1.
19. Repeat steps 16-18 for bearing #2, then #3 and #4 in order. (See Figure 7-5.)
20. After these four bearings, re-align the rotating and stationary rings and swivel the frame locking levers back to the locked positions. If the levers cannot be fully seated in the locked position, loosen bearings #1-#4 and repeat steps 16-18. Do not proceed until the bear-



Position the split frame so that the section you are working on hangs over the edge of the work surface. You will need to access the bearing you are adjusting from both sides of the frame.



Depending on the size of the split frame, there may be a different number of bearings than shown in the diagram. Follow the general pattern of tightening opposite pairs, then moving to another pair approximately 90° around the frame.



Use a 7/8" socket to tighten the Nylock nuts.

Do NOT force the bearing tight against the groove.



ings are adjusted so that the locking levers will seat properly.

21. Starting with bearing #5, use the 1/4" hex wrench to turn the eccentric shaft **counter-clockwise** until you can feel the bearing just touch the groove. While holding the bearing in this position, tighten the Nylock nut on the back of the stationary ring.
22. Repeat step 21 for the remaining bearings in order. After adjusting each pair of opposite bearings, set the frame locking levers to make sure they fully seat. If the levers do not seat, re-do the adjustment of the pair of bearings just completed.
23. Go back to bearing #1 and turn the eccentric shaft back **counter-clockwise** until it just touches the groove. While holding the bearing in this position, tighten the Nylock nut on the back of the stationary ring.
24. Repeat step 23 for bearings #2 through #4. Check that locking levers seat after each pair of bearings.
25. After adjusting all bearings, check that the rotating ring turns freely on the stationary ring. If it doesn't, repeat steps 21-24.
26. Looking through the alignment pin hole, turn the rotating ring through one full revolution and make sure each bearing turns with the machine. If they don't, repeat steps 21-24.

Chapter 8

Parts Lists and Drawings

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Refer to the parts lists and drawings in this chapter for ordering and maintenance.

You can call E.H. Wachs Company service at (800) 323-8185 for assistance in ordering.

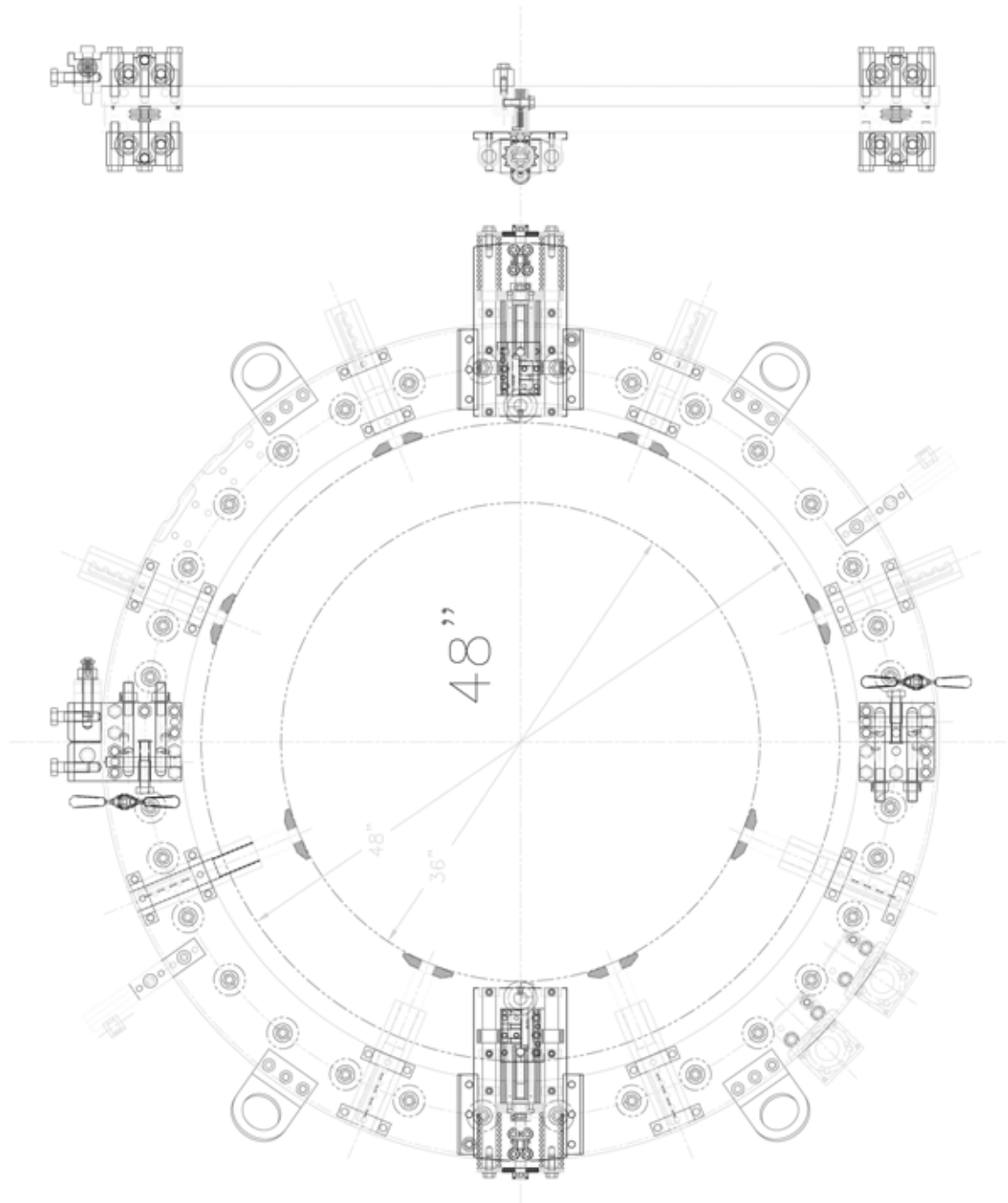
4860 HDSF Frame				
1	03-010-001-60	ROTATING RING (60" ID)		
1	03-010-002-60	STATIONARY RING (60" ID)		
4	03-010-005	GUARD, STRIP		
38	51-017-00	SHAFT, ECCENTRIC		
38	51-018-00	SPACER, BEARING		
2	03-010-014	ARM, HINGE RATCHET		
1	03-010-016	HINGE, MAIN		
4	03-010-015	PLATE, LIFTING		
1	03-010-017	STUD, HINGE		
38	51-024-00	BEARING, GUIDE		
1	03-010-200	RATCHET, HINGE		
2	03-010-201	LOCK, FRAME		
38	90-095-52	WASHER 1/2" SAE	ECCENTRIC	
38	90-045-08	NUT, NYLOCK 1/2-13	ECCENTRIC	
2	90-211-22	3/4-10 x 2-1/4 HHCS Gr 8	HINGE ARM	
2	90-121-32	7/8-9 x 3-1/4 HHCS Gr 8	RACHET	
4	90-125-51	7/8 SAE WASHER	RACHET	
24	90-062-05	5/16-18 x 1/2" BHCS	GUARD	
2	90-225-04	NUT, NYLOCK 7/8-9	RACHET	
1	90-317-30	3/4" X 3" SHOULDER SCREW	HINGE, MAIN	
1	90-205-04	NUT, NYLOCK	HINGE, MAIN	
1	90-215-51	3/4 SAE WASHER	HINGE, MAIN	
1	90-205-59	5/8 SAE WASHER	HINGE, MAIN	
1	90-175-54	WASHER, X-TRA THICK STAINLESS	STUD, HINGE	
1	90-072-07	BHCS, 3/8-16 X 3/4"	STUD, HINGE	
2	90-214-30	3/4-10 X3" SSS	CLAMP BLOCK	
12	90-093-10	FHCS 1/2-13 x 1"	LIFT PLATE	
03-010-405 Single Hydraulic Drive				
1	03-010-080	HOUSING, PINION		
1	03-010-081	COVER, PINION HOUSING		
1	03-010-082	GEAR, PINION		
4	90-050-07	SHCS, 1/4-20 x 3/4" LNG.	COVER, PINION HOUSING	
4	90-070-07	SHCS, 3/8-16 x 3/4" LNG.	MOTOR, HYDRAULIC	
2	90-091-18	HHCS, 1/2-13 x 1-3/4 LNG. (GRADE 8/9)	HOUSING, PINION	
1	90-095-03	NUT, 1/2-20 JAM	HOUSING, PINION	
1	90-075-00	NUT, 3/8-16 JAM	HOUSING, PINION	
3	90-095-52	WASHER, 1/2 SAE	2 HOUSING, 1 ADJ. LOCATING PIN	
1	90-086-10	DOWEL PIN, 7/16 DIA. x 1" LNG.	HOUSING, PINION	
1	03-010-202	PIN, LOCATING ADJUSTABLE	HOUSING, PINION	
1	90-059-48	WDRF KEY 1/4 x 1"	SHAFT, MOTOR	
1	03-010-203	MOTOR		
1	09-025-00	QD, FEMALE		
1	09-026-00	QD, MALE		
1	09-027-00	DUST CAP, MALE QD		
1	09-028-00	DUST CAP, FEMALE QD		
3	90-098-58	NIPPLE, 1/2 HEX HP		
1	02-215-00	BALL VALVE		
1	90-074-17	SSS, 3/8-16 X 3/4 OVAL POINT	PIN, LOCATING ADJUSTABLE	
1	90-074-05	SSS, 3/8-16 X 1/2	GEAR, PINION	

3648 Split Frame (4 or 8 leg mount)		
Qty	Part No.	Description
1	03-010-001-48	ROTATING RING (48" ID)
1	03-010-002-48	STATIONARY RING (48" ID)
4	03-010-005	GUARD, STRIP
32	51-017-00	SHAFT, ECCENTRIC
32	51-018-00	SPACER, BEARING
2	03-010-014	ARM, HINGE RATCHET
1	03-010-016	HINGE, MAIN
4	03-010-015	PLATE, LIFTING
1	03-010-017	STUD, HINGE
32	51-024-00	BEARING, GUIDE
43		SEAL, FELT WIPER
1		RATCHET, HINGE
2		LOCK, FRAME
32	90-095-52	WASHER 1/2" SAE
32	90-045-08	NUT, NYLOCK 1/2-13
2		3/4-10 x 2-1/4 HHCS Gr 8
2		7/8-9 x 3-1/4 HHCS Gr 8
4		7/8 SAE WASHER
2		NUT, NYLOCK 7/8-9
24	90-062-05	5/16-18 x 1/2" BHCS
1		3/4" X 3" SHOULDER SCREW
1		NUT, NYLOCK
1	90-215-51	3/4 SAE WASHER
1	90-205-59	5/8 SAE WASHER
2		3/4-10 X3" SSS
12		FHCS 1/2-13 x 1"
1		WASHER, X-TRA THICK STAINLESS
1	90-072-07	BHCS, 3/8-16 X 3/4"

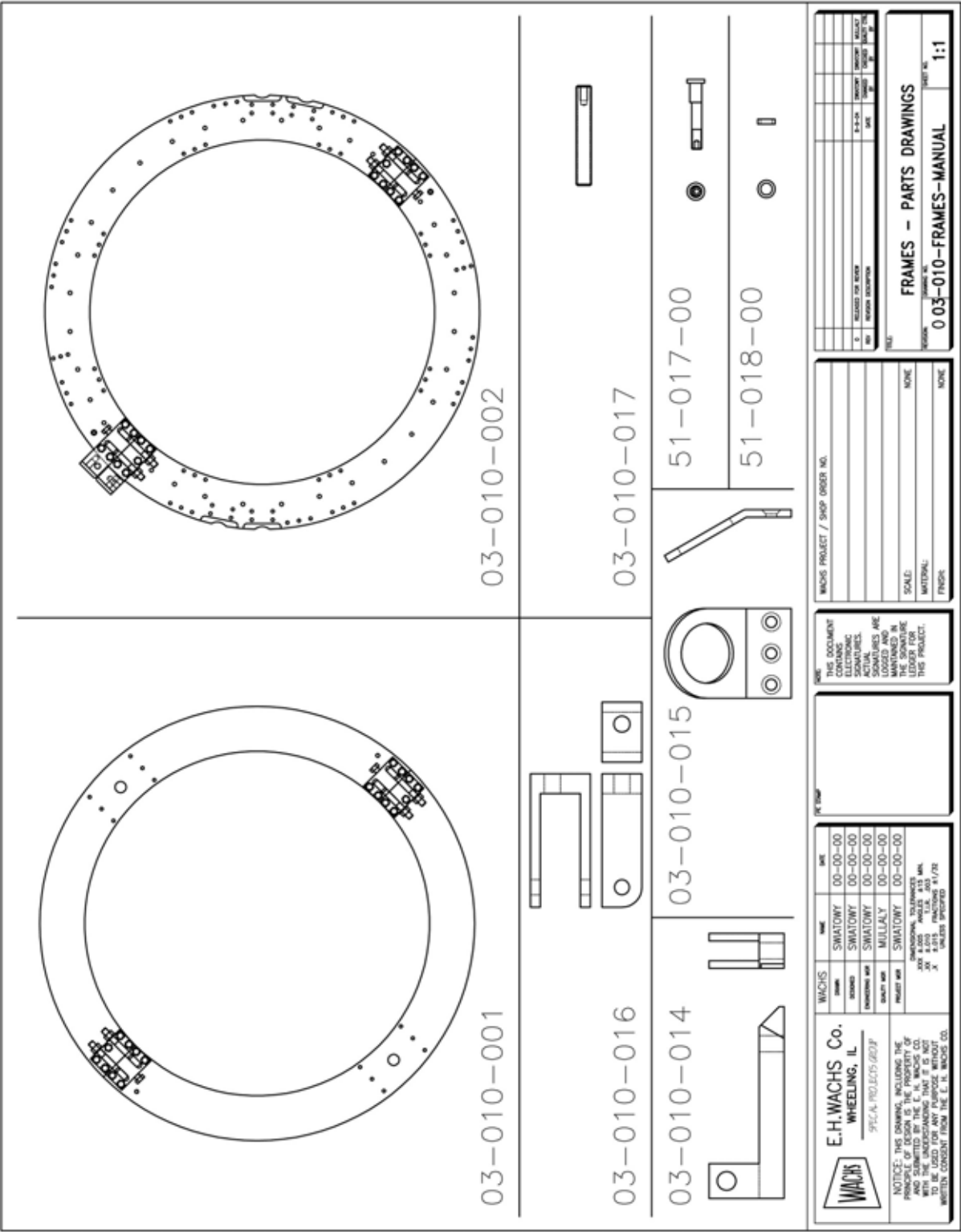
Pneumatic Drive		
1	03-010-080	HOUSING, PINION
1	03-010-081	COVER, PINION HOUSING
1	03-010-082	GEAR, PINION
1		MOTOR, PNEUMATIC
4		SHCS, 5/16-18 x 3/4" LNG.
4		SHCS, 1/4-20 x 3/4" LNG.
2		HHCS, 1/2-13 x 1-3/4 LNG. (GRADE 8/9)
1		NUT, 1/2-20 JAM
1		NUT, 3/8-16 JAM
3		WASHER, 1/2 SAE
1		DOWEL PIN, 7/16 DIA. x 1" LNG.
1		PIN, LOCATING ADJUSTABLE
1		WDRF KEY 1/4 x 1"
1		GEAR
1		SSS, FLAT POINT, 3/8-16 X 1" LNG.
1		SSS, CUP POINT, 3/8-16 X 3/4" LNG
1	66-100-00	CONTROL, SPEED
1	02-106-00	OILER, AIRLINE
4	90-098-01	NIPPLE, 1/2" NPT

03-010-401 OD Tracking Slide Assembly				
2	03-010-030	PLATE, BASE		
4	03-010-031	CLAMP, SLIDE		
4	03-010-032	BAR, GUIDE		
12	03-010-033	MOUNT, GUIDE BAR		
4	03-010-034	RETAINER, SPRING		
2	03-010-035	SLIDE, TOOL		
2	03-010-036	PLATE, TRACKING BAR END		
2	03-010-037	BAR, TRACKING		
2	03-010-038	STARWHEEL		
2	03-010-040	SCREW, FEED		
2	03-010-041	NUT, FEED		
2	03-010-042	BUSHING, TRACKING BAR		
2	03-010-043	BLOCK, FEED SCREW		
2	03-010-044	NUT, SLIDE RETRACTING		
2	03-010-045	WHEEL, TRACKING		
2	03-010-046	PIN, TRACKING WHEEL		
1	03-010-047	HOLDER, COMBINATION TOOL		
1	03-010-048	HOLDER, TOOL		
2	03-010-049	PLATE, TOOL RETAINING		
2	03-010-050	PIN, SLIDE COUPLING		
2	03-010-206	BEARING, .75 x .875 x .50 LG. SLEEVE	TRACK BAR END PLATE	
2	03-010-207	BEARING, 2.0 x 2.188 x 1.5 LG. SLEEVE	SLIDE	
8	03-010-208	BEARING, 1.003 x 1.253 x 1.0 LG. SLEEVE	SLIDE	
2	03-010-209	BEARING, .753 x .878 x 1.5 LG. SLEEVE	FEED SCREW BLOCK	
2	03-010-210	BEARING, .750 x 1.00 x .75 LG. NEEDLE	TRACKING ROLLER	
2	03-010-211	BEARING, .75 x 1.25 x .0781 THRUST NEEDLE	FEED SCREW BLOCK	
2	03-010-212	BEARING, .50 x .937 x .0781 THRUST NEEDLE	SPRING RETRACT	
6	03-010-213	WASHER, .75 x 1.25 x .063 THRUST	FEED SCREW	
4	03-010-214	WASHER, .50 x .937 x .032 THRUST	SPRING RETRACT	
4	03-010-215	WASHER, 1.0 x 1.75 x .058 THRUST	TRACKING WHEEL	
2	03-010-216	WASHER, .75 x 1.072 x .015 WAVE	FEED SCREW	
2	03-010-217	RING, .937 x .021 W. - I.D. RETAINING	SPRING RETRACT	
2	03-010-218	RING, .585 x .025 W. - O.D. RETAINING	PIN, SLIDE COUPLING	
4	03-010-219	SPRING, .1.795 x 1.271 x 6 LG.	SLIDE	
2	03-010-220	COLLAR, .75 x 1.5 x .50 SHAFT	FEED SCREW	
1	90-800-30	WRENCH, 3/4" COMBINATION		
1	90-800-29	WRENCH, 1-1/8" COMBINATION		
1	90-800-40	WRENCH, LARGE HEX KEY SET		
12	90-050-10	SHCS, 1/4-20 x 1" LG.	TRACK BAR END PLATE	
6	90-070-10	SHCS, 3/8-16 x 1" LG.	TOOL HOLDER	
8	90-070-12	SHCS, 3/8-16 x 1-1/4" LG.	TOOL RETAINING PLATE	
6	90-070-15	SHCS, 3/8-16 x 1-1/2" LG.	TOOL HOLDER	
6	90-070-17	SHCS, 3/8-16 x 1-3/4" LG.	TOOL HOLDER (BEVEL TOOL)	
12	90-070-25	SHCS, 3/8-16 x 2-1/2" LG.	GUIDE BAR MOUNT	
8	90-073-10	FHCS, 3/8-16 x 1" LG.	FEED SCREW BLOCK	
4	90-091-12	HHCS, 1/2-13 x 1-1/4" LG. (GRADE 8/9)	GUIDE BAR	
12	90-091-15	HHCS, 1/2-13 x 1-1/2" LG. (GRADE 8/9)	SLIDE CLAMP	
2	90-091-41	HHCS, 1/2-13 x 4" LG. FULLY THREADED (GRADE 8/9)	TOOL SLIDE RETRACT	
2	90-064-05	SSS, 5/16-18 x 1/2" LG.	TRACKING BAR	
4	90-066-07	PIN, 5/16 x 3/4, DOWEL	TOOL SLIDE	
2	90-066-61	PIN, 5/16 x 1-1/8, ROLL	STARWHEEL	
16	90-095-54	WASHER, 1/2" HARDENED	12 SLIDE CLAMP /4 GUIDE BAR	

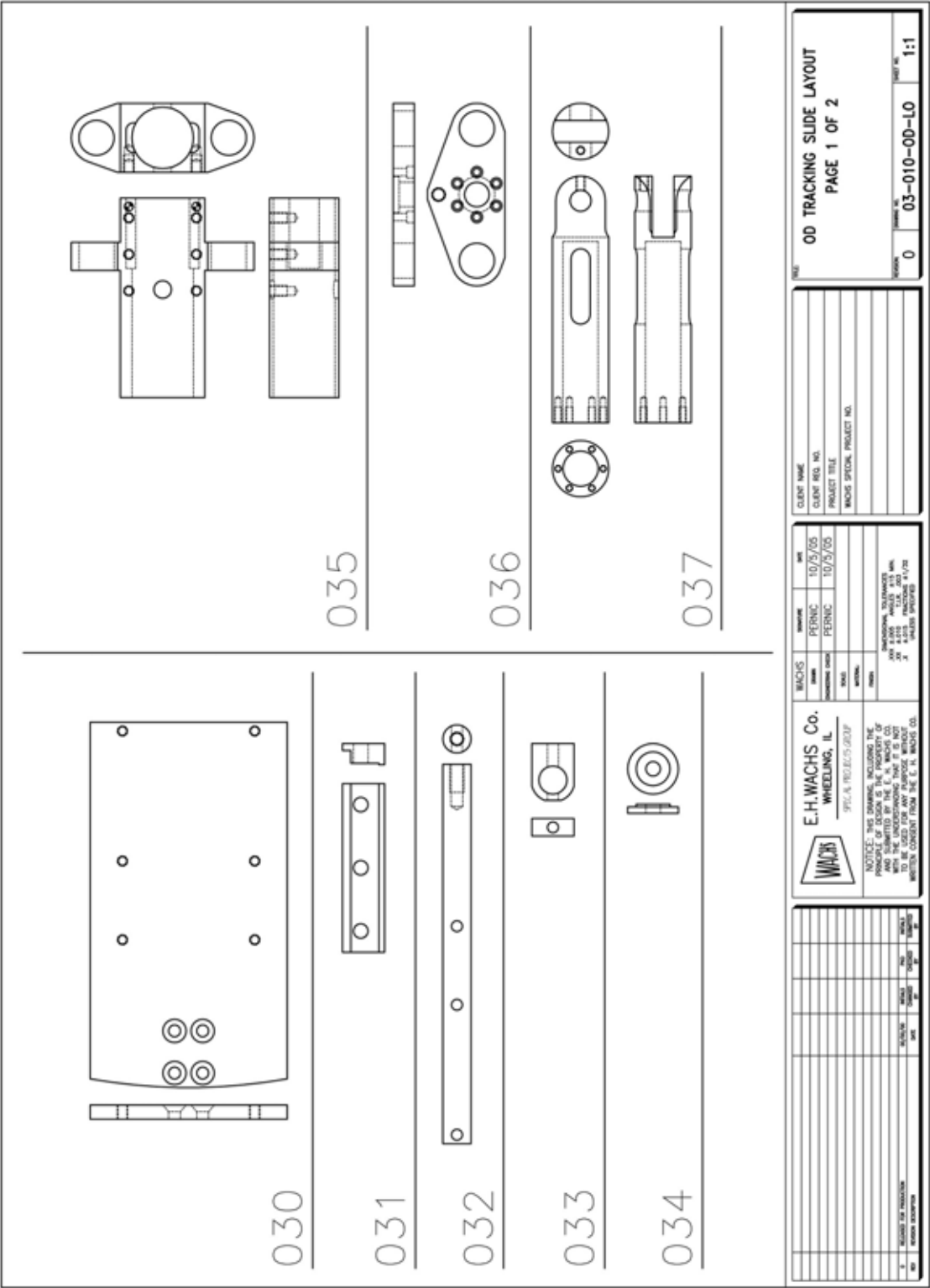
03-010-403 Spring Loaded Trip Assembly				
1	03-010-062	TRIP, FEED		
1	03-010-063	HOUSING, FEED TRIP		
1	03-010-064	RETAINER, FEED TRIP		
1	03-010-065	BLOCK, TRIP POSITIONING		
1	03-010-066	BLOCK, TRIP MOUNTING		
1	03-010-228	SPRING, .329 x .211 x 2 LG.	TRIP	
1	03-010-229	T-NUT, .625 SLOT x 1.0 WIDE x 1/2-13 THD.	TRIP MOUNT	
1	03-010-230	HANDLE	BLOCK, TRIP POSITIONING	
1	20-033-00	KNOB		
3	90-091-20	HHCS, 1/2-13 x 2" LG.	2 TRIP MNT BAR / 1 TRIP HSG	
1	90-074-10	SSS, 3/8-16 X 1" LNG	KNOB	
3	90-095-54	WASHER, 1/2" HARDENED	2 TRIP MNT BAR / 1 TRIP HSG	
1	90-046-06	PIN, 3/16 x 5/8, DOWEL	TRIP PIN	
4	90-086-10	PIN, 7/16 x 1, DOWEL	TRIP MOUNTING BAR	
03-010-412 Leg Assembly				
8	03-010-070	HOUSING, CLAMP LEG REV a		
8	03-010-071	SCREW, CLAMP LEG		
8	03-010-075	FOOT ASSEMBLY		
16	03-010-073	BLOCK, CLAMP LEG MOUNTING		
8	03-010-222	WASHER, 1.0 x 1.562 x .063 THRUST	CLAMP LEG	
8	03-010-223	RING, 1.00 . x .042 W. - O.D RETAINING	LEGS	
1	90-800-63	WRENCH, 1/2" RATCHET	CLAMP LEG	
1	90-800-37	EXTENTION, 1/2" x 5" LG. SOCKET	CLAMP LEG	
1	90-800-32	SOCKET, 1-1/8" SIX POINT x 1/2"	CLAMP LEG	
32	90-091-41	HHCS, 1/2-13 x 4" LG. (GRADE 8/9)	CLAMP LEG MOUNTING BLOCK	
16	90-095-54	WASHER, 1/2" HARDENED	CLAMP LEG MOUNTING BLOCK	
8	90-086-10	PIN, 7/16 x 1", DOWEL	CLAMP LEG MOUNTING BLOCK	
8	90-086-15	PIN, 7/16 x 1-1/2", DOWEL	CLAMP LEG MOUNTING BLOCK	
03-010-413 Hydraulic Speed Control				
1	03-010-136	AIR CADDY WELDMENT		
2	03-010-138	SPACER		
1	03-010-225	FLOW CONTROL		
1	90-098-58	NIPPLE, 1/2 HEX HP		
1	03-010-226	ELBOW, 1/2 MPT X 3/4-16 SAE 37 X 90 DEGREE		
1	03-010-227	TEE, 3/4-16 SAE 37 X 1/2 MPT X 1/2 MPT		
2	03-010-137	HOSE ASSEMBLY		
2	90-050-30	SHCS, 1/4-20 X 3		
2	90-055-06	NUT, 1/4-20 NYLOCK		
4	90-055-03	WASHER, 1/4 FLAT		
2	09-025-00	QD, FEMALE		
2	09-026-00	QD, MALE		
2	09-027-00	DUST CAP, MALE QD		
2	09-028-00	DUST CAP, FEMALE QD		


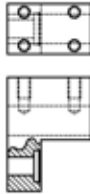
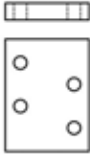
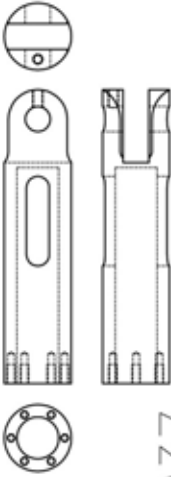




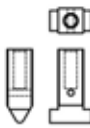


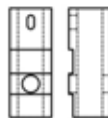

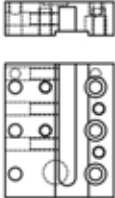


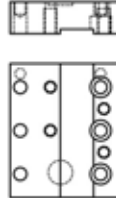

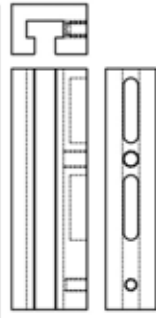



3648 heavy duty split frame.



Frame components



 038	 043	 049
 037	 044	 050
 038	 045	 062
 040	 046	 063
 041	 047	 064
 042	 048	 065
		 066

**E.H. Wachs Co.**
WHEELING, IL
975 N. WILSON ST.
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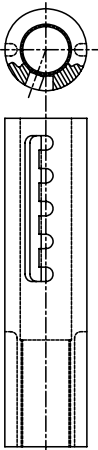

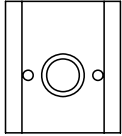
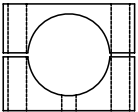
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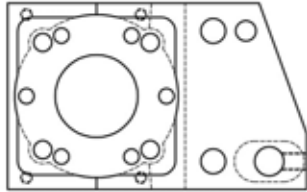
OD TRACKING SLIDE LAYOUT
PAGE 2 OF 2

Tracking slide components (2 of 2)

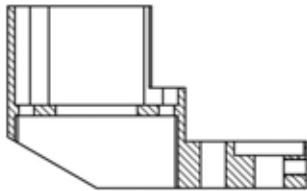
	
03-010-070	
03-010-071	
PARTS NOT SHOWN	
03-010-222 WASHER, 1.0 x 1.562 x .063 THRUST	
03-010-223 RING, 1.00 x .042 W. - O.D RETAINING	
90-091-41 HHCS, 1/2-13 x 4" LG. (GRADE 8/9)	
90-095-54 WASHER, 1/2" HARDENED	
90-086-10 PIN, 7/16 x 1", DOWEL	
90-086-15 PIN, 7/16 x 1-1/2", DOWEL	
03-010-075	
03-010-073	

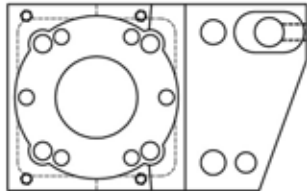
E.H.WACHS Co. WHEELING, IL <i>SPECIAL PROJECT GROUP</i>		WACHS DRAWN ENGINEERING CHECK SCALE MATERIAL FINISH	SIGNATURE PERNIC PERNIC	DATE 10/5/05 10/5/05
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CLAMPS REV A - PARTS DRAWINGS		REVISIONS 0 03-010-412		
TITLE		SHEET NO. 1:1		

REV	REVISION DESCRIPTION	DATE	INITIALS CHANGED BY	PKG CHECKED BY	INITIALS SUBMITTED BY
0	RELEASED FOR PRODUCTION	00/00/00			

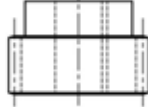


03-010-080





03-010-081



03-010-082

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WHEELING, IL
SPECIAL PROJECTS GROUP

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WACHS SIGNATURE DATE

PERNIC 10/5/05

OLSON 10/5/05

SCALE: MATERIAL: FINISH:

DIMENSIONAL TOLERANCES
.XXX ±.005 ANGLES ±15 MIN.
.XX ±.010 T.I.R. .003
.X ±.015 FRACTIONS ±1/32
UNLESS SPECIFIED

CLIENT NAME

CLIENT REQ. NO.

PROJECT TITLE

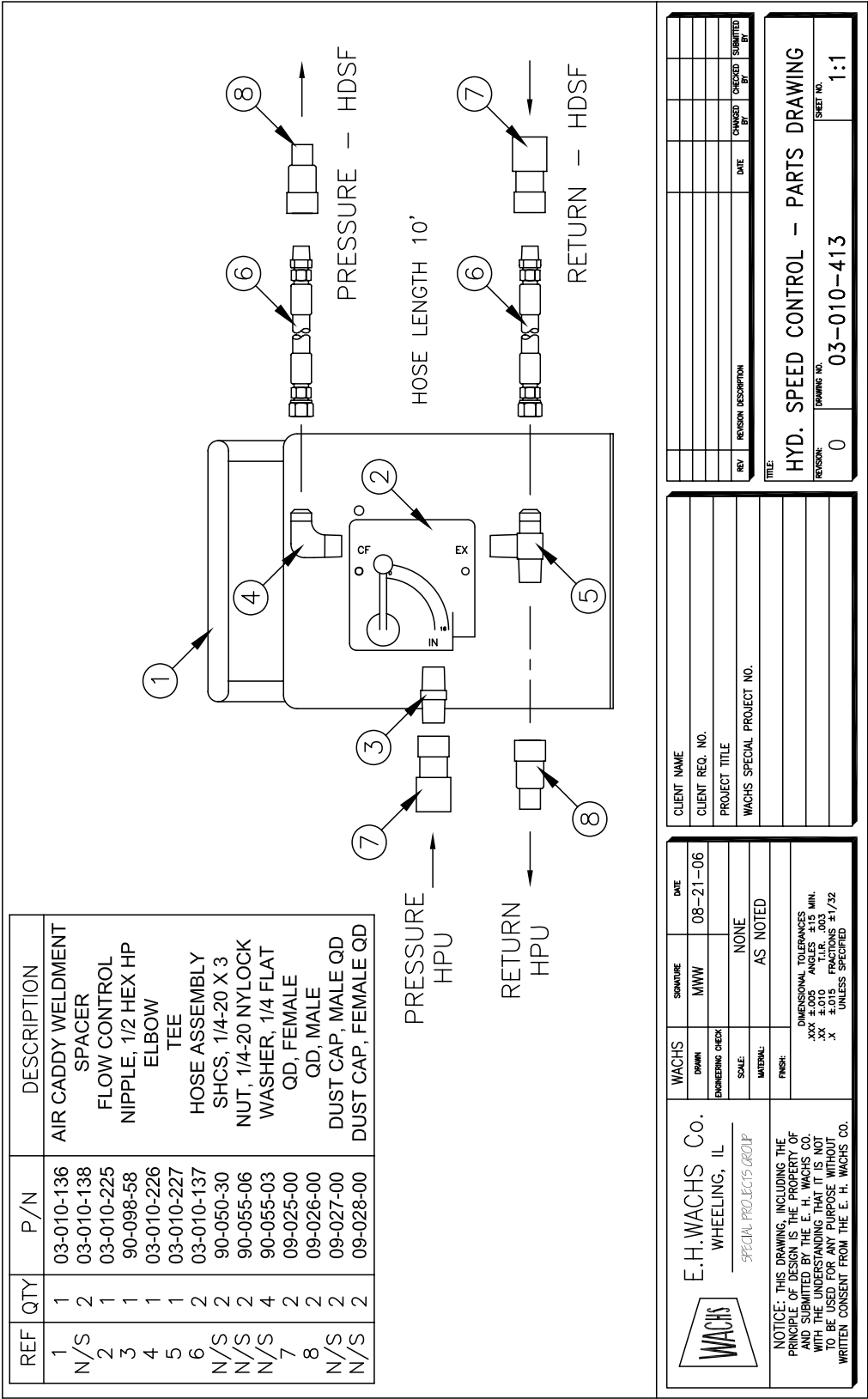
WACHS SPECIAL PROJECT NO.

TITLE: **DRIVES - PARTS DRAWINGS**

REVISION: **0 03-010-L0-DRIVES 1:1**

DRAWING NO. SHEET NO.

Drive Components



Chapter 9

Accessories

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This chapter lists accessories and recommended spares for the heavy duty split frame. See Chapter 8 for information on ordering replacement parts and accessories.

In This Chapter

ACCESSORIES

RECOMMENDED SPARES

ACCESSORIES

- Speed control valve (for use with hydraulic power units without built-in flow control). See Figure 9-1.

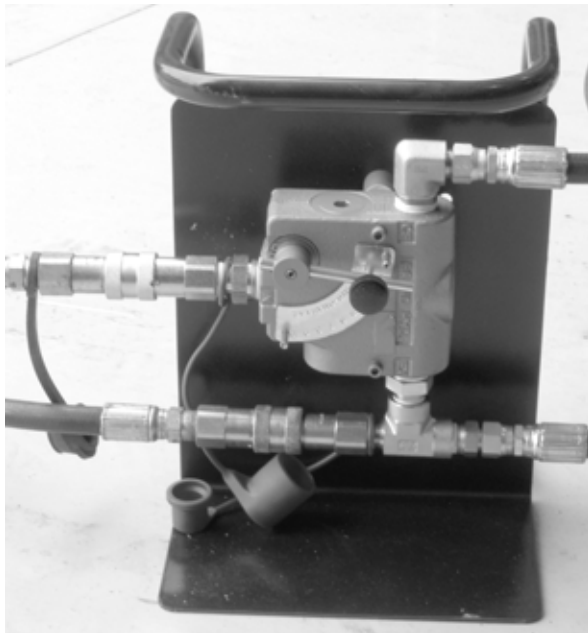


Figure 9-1. The flow control valve is used to set the cutting speed of the HDSF when there is no flow control on the hydraulic power unit.

RECOMMENDED SPARES

Table 1 lists the recommended spare parts for stocking.

Table 1:

Part Description	Part Number	Qty
Parting Tool	43-711-01	
37.5° Beveling Tool	53-703-00	
Optional Parting Tool	60-711-01	
Facing Tool	52-701-01	
Tool Holders	03-010-710	1
	03-010-711	1
	03-010-712	1

Chapter 10

Ordering Information

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To place an order, request service, or get more detailed information on any E.H. Wachs Company products, call us at one of the following numbers:

U.S. 800-323-8185
International: 847-537-8800

ORDERING REPLACEMENT PARTS

When ordering parts, refer to the parts lists in Chapter 8. Please provide the part description and part number for all parts you are ordering.

REPAIR INFORMATION

Please call us for an authorization number before returning any equipment for repair or factory service. We will advise you of shipping and handling. When you send the equipment, please include the following information:

- Your name/company name
- Your address
- Your phone number
- A brief description of the problem or the work to be done.

Before we perform any repair, we will estimate the work and inform you of the cost and the time required to complete it.

In This Chapter

REPLACEMENT PARTS

REPAIR INFORMATION

WARRANTY INFORMATION

RETURN GOODS ADDRESS

WARRANTY INFORMATION

Enclosed with the manual is a warranty card. Please fill out the registration card and return to E.H. Wachs Company. Retain the owner's registration record and warranty card for your information.

RETURN GOODS ADDRESS

Return equipment for repair to the following address.

E.H. Wachs Company
600 Knightsbridge Parkway
Lincolnshire, Illinois 60069 USA

Alpha Rentals, L.L.C.
4706 Curtis Lane
New Iberia, LA 70560
337-367-2880 www.alpha4rentals.com